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Dear Commissioners Geesman and Boyd,

I'm looking forward to appearing before your panel next week. Meanwhile, here are my responses to the questions posed in your letter of invitation. I'm sending separately a paper that I did earlier this year on the future of nuclear power in competitive power supply markets. That paper responds in more detail to several of the questions that you have raised.

Sincerely,

Peter Bradford

1. As a former Nuclear Regulatory Commissioner, what do you consider to be the major regulatory challenges for the NRC?

**The major challenge that the Commission faces is to become an independent force for nuclear safety and an agency in which employees do not fear reprisal for raising safety issues. To do that, it will have to stand apart from Congressional, administration and industry pressure. Its behavior, rather than merely its rhetoric, will have to put safety ahead of the economic interest of the nuclear industry. It has a long way to go.**

**The NRC has in recent years fallen back into the mindset described in the post-Three Mile Island reports of the President's Commission and the NRC's own Special Inquiry Group as being a major contributor to the TMI accident. As the President's Commission put it, "We find that the NRC is so preoccupied with the licensing of plants that it has not given primary consideration to overall safety issues…….With its present organization, staff and attitudes, the NRC is unable to fulfill its responsibility for providing an acceptable level of safety for nuclear power plants".[1]**

**Were another accident to occur tomorrow, the subsequent investigators would hardly have to change a word of these findings.**

**Here is a partial bill of particulars (assembled from memory of events in the last few years – research would produce much more) that such a review would consider in reaching this conclusion in 2005:**

[1] Report of the President's Commission on the Accident at Three Mile Island: The Need for Change, October, 1979, pp. 51, 56.

- **The near accident at Davis-Besse in 2002, in which the NRC allowed the economic interests of the plant owner to override a staff recommendation that the plant be shut down to inspect the reactor vessel head;**
- **The 2002 internal NRC survey showing that almost half of all NRC employees thought that their careers would suffer if they raised safety concerns and nearly one-third of those who had raised safety concerns felt they had suffered harassment and/or intimidation as a result. The then chair of the NRC said that this survey was good news because the 2000 survey had shown that 60% of all employees had feared that raising safety issues would hurt their careers;**
- **The unfounded NRC claim immediately after the September 11, 2001 attacks that nuclear power plants would withstand such plane crashes, later withdrawn;**
- **The systematic reduction of opportunities for public participation, including rejection of intervenor group efforts to raise potential terrorism as an issue in licensing proceedings since September 11, 2001 on the grounds that terrorism at the facility in question was "too speculative". The staff position to this effect was submitted to the licensing board on September 12, 2001.**
- **An unprecedented commissioner speech attacking an intervenor group with a long history of responsible involvement in NRC proceedings;**
- **Repeat decisions by the Commission to recommend for the highest possible federal bonus the employee who had been primarily responsible for the mistakes at Davis-Besse, an employee who – during the same time period – had been found by the NRC Inspector-General to have knowingly inserted a false statement in a letter by the NRC Chair;**
- **The ongoing effort by the NRC to make a relatively low ranking First Energy employee the sole individual sanctioned for the many failings at Davis Besse.**
- **Statements in China by the NRC Chair promising that a license would be issued to a pending reactor design application by Westinghouse;**
- **The claim by Senator Pete Domenici that he had successfully persuaded the NRC to reverse its "adversarial attitude" toward the nuclear industry by threatening to cut its budget by one-third in a 1998 meeting with the Chair.[2]**

2. As a former Public Service Commissioner, what do you consider to be the major regulatory challenges for Public Utilities Commissions?

**Where future nuclear units (or expansion of existing units) are concerned, the major challenge is creating a power plant selection (or integrated resource planning process) in which all options are evaluated on the basis of their real total costs.**

3. The National Commission on Energy Policy in its December 2004 report "*Ending the Energy Stalemate: A Bipartisan Strategy to Meet America's Energy Challenges" at* www.energycommission.org has proposed an overall energy policy package, which includes a nuclear policy element. The National

[2] Senator Pete V. Domenici, A Brighter Tomorrow: Fulfilling the Promise of Nuclear Energy, (Rowman & Littlefield, 1998), pp. 74-75.

Commission on Energy Policy also indicated that a "substantial expansion" in nuclear energy would require surmounting four substantial challenges (reducing the costs of reactor construction and operation, simultaneously achieving a ten-fold or more reduction in the probability of a major release in radioactivity resulting from not only malfunction and human error but also terrorist attack, the federal government demonstrating to the utilities and the public that it can meet its obligations to take possession and sequester the highly radioactive spent fuel from reactor operations, and that a highly effective international program be established to resolve the risks of proliferation). How likely is it that these four challenges can be surmounted?

**First, the commission report does not include a serious discussion of the NRC shortcomings described in my response to question 1 above. The report's failure to take safety shortcomings seriously is at least as important as "four challenges" that it does pose.**
**Second, decisions regarding the future of nuclear power should not rest on the ability of any governmental to peer successfully into the future to answer questions like these. The U.S. has for 25 years been shifting with considerable success toward a system in which power plants are contracted for and built under a system in which investors decide their own tolerance for these risks. If that market-based paradigm were – by a market neutral mechanism such as a cap-and-trade system or a carbon tax – adjusted to reflect the real cost of fossil fuels, then investors could make their own judgments about the first three of these challenges. As to the fourth, current world events and U.S. policies indicate that a "highly effective" program to resolve the risks of proliferation from nuclear power will not be established any time soon.**

4. What are the likely costs and benefits of the U.S. Department of Energy's *Nuclear Power 2010* program? To what extent does this program address the four substantial challenges identified by the National Commission on Energy Policy?

**The DOE program has addressed none of the challenges effectively to date. The construction of a few heavily subsidized reactors under an eviscerated licensing process will prove only that the government can build nuclear plants, not that an effective market for such plants exists. But we can also learn that lesson by looking to China.**

5. What is the current status of new nuclear energy technologies? What are the potential safety and cost trade-offs of emerging nuclear reactor technologies and alternative fuel cycles?

**Others will answer these questions better than I would.**

6. What is the current status of spent fuel reprocessing domestically and internationally? What are the potential tradeoffs among reprocessing technologies? Are there "lessons learned" from the international experience to date?

**Spent fuel reprocessing has not been done commercially in the U.S. since the early 1970s. The British program has been shown to be several times more expensive than the U.S. once through cycle and may soon be abandoned.**

**Reprocessing continues to be of serious interest only in those countries (Russia, France, Japan, India and perhaps China) where its economics not subject to transparency or to competitive market tests. Of course, it is also of currently conspicuous interest to countries (North Korea and Iran) whose intentions with regard to using it to produce nuclear weapons are at least suspect.**